



## Materials Engineering Branch

### TIP\*



No. 005 Plasticizer Contamination from Polyvinyl Chloride

Author(s): Fred Gross

Contact: (301) 286-6882

---

One of the most ubiquitous contaminants found on flight hardware during testing is the plasticizer from polyvinyl chloride and other flexible polymers: di-2-ethylhexyl phthalate, more commonly known as DEHP, DOP, or Octoil. This plasticizer is extremely volatile in vacuum. It is even volatile at standard room temperature and pressure.

Some of the common sources of the polyvinyl chloride plasticizer are Tygon tubing, vinyl gloves, vinyl wire insulation and neoprene rubber. Even using Tygon tubing for a purge line, for extended periods of time, can result in extraction of the plasticizer from the tubing. None of these materials should be used anywhere near flight hardware. If detected, this plasticizer is relatively easy to remove with alcohol and many other solvents or with an oven or vacuum bake out. FTIR<sup>1</sup> analysis of a collected sample is usually adequate to identify this type of contaminant.

Solvents must not be stored in vinyl containers because of the ability of the solvent to leach the plasticizer from the container. Teflon, glass or polyethylene containers are recommended for solvent storage. One must also avoid the use of coated paper cap liners for use with solvents. The cap liners of choice are Teflon, polyethylene or metal foil.

---

<sup>1</sup> Fourier Transform Infrared.